List of Claims:

1. (Original) A method of growing a crystal on a substrate disposed in a reactor that provides a reactor chamber in which the substrate is disposed, the method comprising:

flowing reactive gases inside the reactor chamber toward the substrate, the reactive gases comprising components that are able to bond to each other to form the crystal;

heating a buffer gas; and

flowing the heated buffer gas in the reactor chamber between the reactive gases and a wall of the reactor such that the reactive gases and the buffer gas can interact;

wherein the flowing buffer gas inhibits at least one of a first material at least one of in and produced by the reactive gases from reaching the reactor wall and a second material produced by the reactor wall from reaching the reactive gases in the reactor chamber before the reactive gases reach the substrate.

2. (Original) The method of claim 1 further comprising using the buffer gas to heat the reactive gases sufficiently to react to form a desired material before reaching the substrate, the desired material for forming a desired crystal on the substrate.

3. (Original) The method of claim 1 further comprising expelling unused portions of the reactive gases and the buffer gas from the chamber, wherein the buffer gas flows at a speed such that substantially none of the first material reaches the reactor wall and substantially none of the second material reaches the reactive gases inside the reactor chamber.

4. (Original) The method of claim 1 wherein the buffer gas comprises at least a third material configured to react with at least one of the first and second materials to form at least one inert, stable material.

5. (Original) The method of claim 1 wherein the buffer gas comprises at least one inert gas.

6. (Original) The method of claim 5 wherein the at least one inert gas comprises at least one of helium and argon.

7. (Original) The method of claim 1 wherein the reactive gases comprise at least one of a dopant and an etchant that will react with the reactor wall to produce the second material.

8. (Original) The method of claim 7 wherein the reactive gases comprise the etchant and the etchant is hydrogen.

9. (Original) The method of claim 1 wherein the reactive gases include at least one of silane, silicon tetrachloride, and trimethylsilane, and at least one of methane and propane.

10. (Original) The method of claim 1 further comprising heating the reactor wall.

11. (Original) The method of claim 10 wherein at least one of the reactor wall, the buffer gas, and the substrate seat is heated to control a temperature difference between a temperature of the reactive gases and a temperature of the substrate.

12. (Original) The method of claim 11 wherein the difference is maintained between about 5°C and about 200°C.

13. (Original) The method of claim 1 further comprising mixing all components of the reactive gases before flowing the reactive gases in the reactor chamber.

14. (Original) The method of claim 1 further comprising flowing components of the reactive gases separately into the reactor chamber to inhibit mixing of the components prior to introduction into the chamber.

15. (Original) The method of claim 1 further comprising expelling the buffer gas at least one of in a direction parallel to an axis of the reactor and through at least one opening defined in the reactor wall.

16. (Original) The method of claim 1 wherein the reactive gases comprise one of

the following groups of elements: silicon and carbon, aluminum and nitrogen, gallium and nitrogen, aluminum and gallium and nitrogen, and alloys of any of the preceding groups.

17. (Original) The method of claim 1 wherein the reactive gases include gases for growing crystals of at least one of SiC, a group III-V compound, and an alloy of SiC or a group III-V compound.

18 - 34. (Canceled).